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Thomas J. Engellenner, Esq.
Nutter Mcclennen & Fish LLP
World Trade Center West
155 Saport Boulevard
Boston, MA 02210

EXAMINER	
CHERNYSHEV, OLGA N	
ART UNIT	PAPER NUMBER
1646	

DATE MAILED: 09/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/939,472	DURING ET AL.	
	Examin r	Art Unit	
	Olga N. Chernyshev	1646	

-- Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 June 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) *1,2 and 23-29* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4/9/03; 6/18/02* OE
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group II and Alzheimer's disease as elected species in Paper filed on June 20, 2003 is acknowledged. The traversal is on the ground(s) that "a single search should suffice for examination of all aspects of this invention" (page 2 of the Response). This is not found persuasive because an application may properly be required to be restricted to one of two or more claimed inventions if they are able to support separate patents and they are either independent (MPEP § 806.04 - § 806.04 (j)) or distinct (MPEP § 806.05 - § 806.05 (i)). The Examiner has shown that the Groups I and II are independent or distinct for the reasons in the previous Office action (see Paper No. 11). Furthermore, MPEP § 803 provides that the separate classification (i.e., class and subclass) of distinct inventions is sufficient to establish a *prima facie* case that the search and examination of the plural inventions would impose a serious burden upon the Examiner; such separate classification was set forth in the Office action mailed July 18, 2002 (Paper No. 11).

The requirement is still deemed proper and is therefore made FINAL.

Claims 1-2 and 23-29 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 11.

Claims 3-22 are under examination in the instant office action.

Specification

2. The text of the instant specification, including claims, is not in compliance with the requirements for Sequence Identifiers (see MPEP 2422.03). The appropriate format for sequence identifiers is SEQ ID NO: X, wherein "X" is the sequence number. Appropriate correction is required.

Claim Objections

3. Claims 3, 6, 9, 13, 17 and 20 are objected to because of the following informalities: the claims depend from non-elected claims. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 3-5, 9-12 and 17-19 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 3-5, 9-12 and 17-19 are directed to methods reciting administration of a synthetic peptide, or functional analog, derivative, fragment or mimetic thereof, homologous to glucagons, Exendin- and glucagons-like peptides wherein said peptide retains biological activity in cellular

and animal models. However, the instant specification fails to describe the entire genus of proteins, which are encompassed by these claims. In making a determination of whether the application complies with the written description requirement of 35 U.S.C. 112, first paragraph, it is necessary to understand what Applicant has possession of and what Applicant is claiming. From the specification, it is clear that Applicant has possession of a protein molecule, which has the amino acid sequence of SEQ ID NO: 1. The subject matter, which is claimed is described above. First, a determination of the level of predictability in the art must be made in that whether the level of skill in the art leads to a predictability of structure; and/or whether teachings in the application or prior art lead to a predictability of structure. The claims are methods reciting administration of a synthetic peptide, or functional analog, derivative, fragment or mimetic thereof, homologous to glucagons, Exendin- and glucagons-like peptides wherein said peptide retains biological activity in cellular and animal models. First, the claims are not limited to using a protein with a specific amino acid sequence. The claims only require the protein to share some degree of structural similarity to the synthetic protein of SEQ ID NO: 1. The specification only describes a protein having the amino acid sequence of SEQ ID NO: 1 and fails to teach or describe any other protein which lacks the amino acid sequence of SEQ ID NO: 1 and has the activities possessed by the synthetic protein of SEQ ID NO: 1. Therefore, there is a lack of guidance or teaching regarding structure and function because there is only a single example provided in the specification and because there is no guidance found in the prior art.

Next in making a determination of whether the application complies with the written description requirement of 35 U.S.C. 112, first paragraph, each claimed species and genus must be evaluated to determine whether there is sufficient written description to inform a skilled

artisan that applicant was in possession of the claimed invention at the time the application was filed. With this regard, the instant application fails to provide a written description of the species or the genus which are encompassed by the instant claims except for the protein of SEQ ID NO: 1. The specification does not provide a complete structure of those peptides, which are a functional analog, derivative, fragment or mimetic of a synthetic peptide of SEQ ID NO: 1, or are homologous to glucagons, Exendin- and glucagons-like peptides wherein said peptide retains biological activity in cellular and animal models. The claims also fail to recite other relevant identifying characteristics (physical and/or chemical and/or functional characteristics coupled with a known or disclosed correlation between function and structure) sufficient to describe the claimed invention in such full, clear, concise and exact terms that a skilled artisan would recognize applicant was in possession of the claimed invention. The specification fails to provide a representative number of species for the claimed genus (those peptides, which are a functional analog, derivative, fragment or mimetic of a synthetic peptide of SEQ ID NO: 1, or are homologous to glucagons, Exendin- and glucagons-like peptides wherein said peptide retains biological activity in cellular and animal models) because the specification teaches only the one embodiment of SEQ ID NO: 1. Therefore, the claims are directed to subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

5. Claims 3-5 and 9-22 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method of enhancing or facilitating learning, memory, and cognition in a mammal by administration of a protein of SEQ ID NO: 1, does not reasonably

provide enablement for methods of enhancing or facilitating learning, memory, and cognition or for the treatment of a neurological disorder in a mammal by administration of a synthetic peptide, or functional analog, derivative, fragment or mimetic thereof, homologous to glucagons, Exendin- and glucagons-like peptides wherein said peptide retains biological activity in cellular and animal models. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims.

Claims 3-5, 9-12 and 17-19 are directed to methods reciting administration of a synthetic peptide, or functional analog, derivative, fragment or mimetic thereof, homologous to glucagons, Exendin- and glucagons-like peptides wherein said peptide retains biological activity in cellular and animal models. Claims 13-16 and 20-22 are directed to methods for treatment of neurological disease by administration of a protein of SEQ ID NO: 1. However, the instant specification fails to provide enough guidance for one skilled in the art on how to practice the instant method, thereby requiring undue experimentation to discover how to use Applicant's invention, as currently claimed.

The factors to be considered in determining whether a disclosure would require undue experimentation include (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art and, (8) the breadth of the claims. *In re Wands*, 8 USPQ2d, 1400 (CAFC 1988).

The nature of the invention is the demonstration that administration of a protein of SEQ ID NO: 1, named Gilatide, leads to enhancing cognitive function and improving memory in rats, used as an animal model (see Figures and pages 8 and 13-19 of the specification). This finding appears to be novel because it is not recognized in the art that protein of SEQ ID NO: 1 is involved in cognitive-enhancing activity. According to the state of the art, SEQ ID NO: 1 is a nine amino acids long peptide, which is identical to a fragment of the first nine amino acids of a glucagon or Exendin molecules.

However, claims 3-5, 9-12 and 17-19 are broadly directed to methods involving administration of a synthetic peptide that has structural similarity to the Gilatide of the instant invention, such as functional analogs, derivatives, fragments or mimetics of Gilatide, peptides homologous to glucagons, Exendin- and glucagons-like peptides wherein said peptides retain biological activity in cellular and animal models. Note that with regard to claim breadth, the standard under 35 U.S.C. §112, first paragraph, entails the determination of what the claims recite and what the claims mean as a whole. In addition, when analyzing the enablement scope of the claims, the teachings of the specification are to be taken into account because the claims are to be given their broadest reasonable interpretation that is consistent with the specification. As such, the broadest reasonable interpretation of the claimed methods is such that they encompass the administration of any peptide having structural similarity to the Gilatide of the instant invention, such as functional analogs, derivatives, fragments or mimetics of Gilatide, peptides homologous to glucagons, Exendin- and glucagons-like leads to memory and cognition enhancement, as well as the treatment of numerous disorders and pathological conditions of a nervous system associated with neuronal loss or with impaired learning memory and cognition.

While the skill level in the art is high, the level of predictability is low. The sole working examples in the specification, as originally filed, pertain to the enhancing learning and memory of rats by administration of a peptide of SEQ ID NO: 1 only. One readily recognizes that extrapolation of these results into methods for enhancing memory and cognition as well as treatment of various neurological conditions in any mammal, including humans, by administration of any peptide that is structurally related to the peptide of SEQ ID NO: 1, appears to be equivalent to presenting an invitation to experiment and determine what peptides except for the peptide of SEQ ID NO: 1 would also have memory-enhancing function, and then further to evaluate which neurological diseases and disorders could be treated as well as assay the effective amount of that peptide.

Furthermore, claims 13-16 and 20-22 are directed to methods for treatment of neurological disease by administration of a protein of SEQ ID NO: 1. As fully explained above, the instant specification fails to provide any evidence or sound scientific reasoning to support a conclusion that the working examples, which pertain to the enhancing learning and memory of rats by administration of a peptide of SEQ ID NO: 1, could be successfully extrapolated to methods of treating disorders, diseases, or conditions of the nervous system, including Alzheimer's disease. Such diseases would include, for example neurodegenerative diseases of different etiology (see Hardy et al., 1998, Science, Vol. 282, pp. 1075-1079, for example), as well as genetic diseases and conditions associated with trauma. One would have no basis for concluding that administration of a peptide of SEQ ID NO: 1 would lead to the treatment of all these conditions because such assertion is not supported by any factual evidence of record. Thus

it would require undue experimentation on the part of a skilled practitioner to discover how to practice the full scope of the instant invention, as currently claimed.

A patent is granted for a completed invention, not the general suggestion of an idea and how that idea might be developed into the claimed invention. In the decision of *Genentec, Inc, v. Novo Nordisk*, 42 USPQ 2d 100,(CAFC 1997), the court held that:
"[p]atent protection is granted in return for an enabling disclosure of an invention, not for vague intimations of general ideas that may or may not be workable" and that "[t]ossing out the mere germ of an idea does not constitute enabling disclosure". The court further stated that "when there is no disclosure of any specific starting material or of any of the conditions under which a process is to be carried out, undue experimentation is required; there is a failure to meet the enablement requirements that cannot be rectified by asserting that all the disclosure related to the process is within the skill of the art", "[i]t is the specification, not the knowledge of one skilled in the art, that must supply the novel aspects of an invention in order to constitute adequate enablement".

The instant specification is not enabling because one can not following the guidance presented therein and practice the claimed method without first making a substantial inventive contribution.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 3-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claims 3, 6, 9, 13, 17 and 20 are vague and indefinite because they encompass a method of administration of "Exendin- and glucagon-like peptides", recited in non-elected claim 1, from which the instant claims depend. Using the phrase "-like peptides" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "-like peptides"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

8. Claims 3, 6, 9, 13, 17 and 20 recite the limitation "said synthetic peptide" in claims 1 and 2. There is insufficient antecedent basis for this limitation in the claim because the claims refer to non-elected claims.

9. Claims 3-22 are vague and ambiguous for recitation of "a therapeutically effective amount" without stating the objective. It is not clear what the amount is effective for. Clarification is required.

10. Claims 9, 13, 17 and 20 are vague and indefinite for recitation "prophylactic and/or therapeutic treatment". "Prophylactic" treatment encompasses a preventive measure, while "therapeutic" treatment covers procedures after the diagnosis of a disease or disorder. Therefore, recitation "prophylactic and therapeutic" appears to be conflicting.

11. Claims 10 and 14 are indefinite for using acronyms without providing full names at their first appearance, see ALS and ADD.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 3-5, 9-12 and 17-19 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 97/46584, 1997.

Claims 3-5, 9-12 and 17-19 are directed to methods reciting administration of a synthetic peptide, or functional analog, derivative, fragment or mimetic thereof, homologous to glucagons, Exendin- and glucagons-like peptides wherein said peptide retains biological activity in cellular and animal models. WO 97/46584, 1997 reference discloses a fragment of exedin peptide, which is 30 amino acids long and has 100% structural similarity in the sequence of the first nine amino acids as compared to the SEQ ID NO: 1 of the instant invention, see a copy of the printout attached to the instant office action. Thus, the sequence disclosed in the WO 97/46584 document meets the limitations of the Exendin-like peptide encompassed by the instant claim 1, absent evidence to the contrary. The Exendin-like peptide of the WO 97/46584 document is disclosed to be used for the treatment of diabetes (see abstract of the document and also text of the abstract provided on the copy of the sequence alignment).

Claims 3-5, 9-12 and 17-19 lack novelty over the WO 97/46584 reference because a reference need not have described an actual reduction to practice of an invention in order to serve as an anticipatory reference. See *In re Siveramakrishnan*, 673 F.2d 1383, 1384, 213 USPQ 441, 442 (CCPA 1982); *In re Donohue*, 766 F.2d 531, 533, 226 USPQ 619, 621 (Fed. Cir. 1985).

Moreover, even if a reference does not explicitly set forth every element of the claim, the reference may still be an anticipatory reference if the element is inherent in the disclosure. See *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950 (Fed Cir 1999). In the instant case, the WO 97/46584 reference explicitly teaches the administration of Exendin-like peptide in the treatment of diabetes. Because memory enhancement would be inherent to that process, disclosure of WO 97/46584 is anticipatory for disclosing method of treatment of diabetes by administration of a Exendin-like peptide.

Conclusion

13. No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Olga N. Chernyshev whose telephone number is (703) 305-1003. The examiner can normally be reached on Monday to Friday 9 AM to 5 PM ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yvonne Eyler can be reached on (703) 308-6564. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Certain papers related to this application may be submitted to Technology Center 1600 by facsimile transmission. Papers should be faxed to Technology Center 1600 via the PTO Fax center located in Crystal Mall 1 (CM1). The faxing of such papers must conform with the notices published in the Official Gazette, 1156 OG 61 (November 16, 1993) and 1157 OG 94 (December 28, 1993) (see 37 C.F.R. § 1.6(d)0. NOTE: If Applicant *does* submit a paper by fax, the original

signed copy should be retained by Applicant or Applicant's representative. NO DUPLICATE COPIES SHOULD BE SUBMITTED so as to avoid the processing of duplicate papers.

Official papers filed by fax should be directed to (703) 872-9306. If this number is out of service, please call the Group receptionist for an alternative number. Faxed draft or informal communications with the examiner should be directed to (703) 308-7939. Official papers should NOT be faxed to (703) 308-7939.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

Olga N. Chernyshev, Ph.D. OC

JOHN ULM
PRIMARY EXAMINER
GROUP 1600